

Amendments to the Claims:

The following is a complete list of claims indicating the changes incorporated by the present amendment and replacing all prior versions of the claims. Any claims canceled herein and all deletions made in claims that are not canceled herein are done so without prejudice to being re-instituted at a later date in this or a related application.

WHAT IS CLAIMED IS:

Claim 1 (currently amended): A process for treating a petroleum residuum to convert components of said residuum having boiling temperatures ranging from about 400°F to about 800°F prior to treatment to products having boiling points that are lower by at least about 20°F, said method comprising:

- (a) combining said petroleum residuum with an aqueous liquid and an additive selected from the group consisting of liquid aliphatic C₁₅-C₂₀ hydrocarbons and dialkyl ethers to form an emulsion,
- (b) exposing said emulsion to ultrasound,
- (c) recovering an organic phase from said emulsion after said exposure.

Claim 2 (original): The process of claim 1 wherein step (a) comprises combining said petroleum residuum with said aqueous liquid at a (petroleum residuum):(aqueous liquid) volume ration of from about 8:1 to about 1:5.

Claim 3 (original): The process of claim 1 wherein step (a) comprises combining said petroleum residuum with said aqueous liquid at a (petroleum residuum):(aqueous liquid) volume ration of from about 5:1 to about 1:1.

Claim 4 (original): The process of claim 1 wherein step (a) comprises combining said petroleum residuum with said aqueous liquid at a (petroleum residuum):(aqueous liquid) volume ration of from about 3:1 to about 1:1.

Claim 5 (original): The process of claim 1 wherein step (b) is performed at a frequency ranging from about 30 kHz to about 300 MHz.

Claim 6 (original): The process of claim 1 wherein step (b) is performed at a frequency ranging from about 1 MHz to about 100 MHz.

Claim 7 (original): The process of claim 1 wherein step (b) is performed at an exposure time of from about 8 seconds to about 150 seconds.

Claim 8 (new): The process of claim 1 wherein said additive consists of one or more liquid aliphatic C₁₅-C₂₀ hydrocarbons.

Claim 9 (new): The process of claim 8 wherein said liquid aliphatic hydrocarbons have a specific gravity of at least about 0.82.

Claim 10 (new): The process of claim 8 wherein said additive is mineral oil.

Claim 11 (new): The process of claim 1 wherein said additive is a dialkyl ether.

Claim 12 (new): The process of claim 11 wherein said dialkyl ether is a member selected from the group consisting of diethyl ether, methyl tertiary-butyl ether, methyl-n-propyl ether, and methyl isopropyl ether.

Claim 13 (new): The process of claim 11 wherein said dialkyl ether is diethyl ether.